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EXAMINER

WANG, QUAN ZHEN

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/623,257

Applicant(s)

SABACH ET AL.

Examiner

Quan-Zhen Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "transmitter/receivers each includes a plurality of telescopes"; "a first antenna, coupled to the first transmitter/receiver, that receives the first signal; and a second antenna, coupled to the second transmitter/receiver, that transmits the second signal"; "first transmitter receiver converts each signal to a corresponding digital signal, and wherein the modulating device modulates each corresponding digital signal with a corresponding optical signal having one of a plurality of predetermined wavelengths"; "transmitter/receivers each include a plurality of telescopes, each telescope arranged to focus an optical signal having one of the predetermined wavelengths"; and "the telescope having filters and splitters to enable the telescope to focus optical signals having any of the predetermined wavelengths" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

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changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 9-15 have been renumbered 8-14, respectively.

3. The disclosure is objected to because of the following informalities: grammatical errors in the instant specification need to be corrected. For example, in claim 6, lines 1-2, "wherein the first and second transmitter/receivers each include a plurality of telescopes, ..." should read "wherein each of the first and second transmitter/receivers includes a plurality of telescopes, ..."; in claim 7, lines 1-2, "wherein the first and second

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transmitter/receivers each include a plurality of telescopes, ..." should read "wherein each of the first and second transmitter/receivers includes a plurality of telescopes, ...".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 6-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 6 recites the limitation of "...transmitter/receivers each include a plurality of telescopes, each telescope arranged to focus an optical signal having one of the predetermined wavelengths ...". However, the present specification neither describes how each of the transmitter/receivers includes a plurality of telescopes, each telescope arranged to focus an optical signal having one of the predetermined wavelengths nor shows any detail structure of a telescope. As shown in figs. 2 and 3, each transmitter (fig. 2) or receiver (fig. 3) comprises only one telescope (element 38 for the transmitter or element 50 for the receiver), not a plurality of telescopes. In addition, in order to arrange each telescope to focus an optical signal having one of the predetermined wavelengths, there must be either 1) some control circuitry that controls a telescope to

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focus to a predetermined wavelengths, or 2) a telescope with built-in structure such that the built-in (i.e. lens, mirror, etc) focuses to a particular wavelength is needed.

However, no such diagram or structure was provided in the specification.

Consequently, the specification is non-enabling for claim 6.

Claim 7 recites the limitation of "...the telescope having filters and splitters to enable the telescope to focus optical signals having any of the predetermined wavelengths ...". However, the present specification does not describe how the filters and splitters are incorporated in the telescope. No structure of a telescope with filters and splitters was provided. Without such structure, the specification is non-enabling for claim 7.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation of "... a modulating device that receives the digital data and that modulates optical components, and the optical components that transmit the optical signal ...". However, it is not clear what it means by "... that modulates optical components".

Claim 5 recites the limitation of "...the first signal includes a plurality of signals...". It's not clear how a signal includes a plurality of signals.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-2, 4-5, 8, 10-12, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Hiramatsu et al. (U.S. Patent US 6,987,989 B2).

Regarding claim 1, as it is understood in view of the above 112 problem, and claim 8, Hiramatsu discloses a communication system (figs. 2-4) that transmits and receives a digitized signal over an optical link, the system comprising: a first transmitter/receiver (fig. 2, relay-station receiving apparatus 110a) that receives a first signal (signal received from 101-1) and includes a digitizing circuit that converts the first signal into digital data, a modulating device that receives the digital data and that modulates into an optical signal (fig. 3, E/O conversion section 112-1), and optical components (fig. 3, E/O conversion section 112-1) that transmit the optical signal containing the digital data; a second transmitter/receiver (fig. 2, relay-station receiving apparatus 110b) including optical components (fig. 4, O/E conversion section 213-1) that receive the optical signal, a converter that converts the optical signal to the digital data a decoding circuit that converts the digital data to a second signal, and a transmitter (fig. 4, the combination of transmitting amplifier 212-1 and signal

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discriminating section 211-1) that transmits the second signal to a destination (fig. 2, communication terminal apparatus 200).

Regarding claim 2, Hiramatsu further discloses that the system including a first antenna (fig. 2, antenna 101-1), coupled to the first transmitter/receiver (fig. 2, relay-station receiving apparatus 110a), that receives the first signal; and a second antenna (fig. 2, antenna 101-N), coupled to the second transmitter/receiver (fig. 2, relay-station receiving apparatus 110b), that transmits the second signal.

Regarding claims 4 and 10, Hiramatsu further discloses that the first signal is a cellular telephone signal (column 1, lines 31-38: mobile communication).

Regarding claim 5, as it is understood in view of the above 112 problem, and claims 12 and 14, Hiramatsu further discloses that each received signal is modulated into an optical signals having one of a plurality of predetermined wavelengths (fig. 3, signals from E/O converter 112-1 to 112-N).

Regarding claim 11, Hiramatsu further discloses transmitting signals to a base station (fig. 2, control station 120).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claims 3, 6-7, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramatsu et al. (U.S. Patent US 6,987,989 B2) in view of Doucet et al. (U.S. Patent US 6,348,986 B1).

Regarding claims 3, and 9, Hiramatsu differs from the claimed invention in that Hiramatsu does not specifically disclose that each of the transmitter/receivers includes a telescope that focuses optical signal. However, it is well known in that art to use a telescope that focuses optical signal. For example, Doucet discloses a wireless optical transmitter/receiver system that using telescope that focuses optical signal (fig. 20, optical antenna 3210). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a wireless optical transmitter/receiver system that using telescope that focuses optical signal, as it is taught by Doucet, in the system of Hiramatsu to replace the optical cable link in order to save the costs for laying optical cables.

Regarding claims 6 and 13, Hiramatsu and Doucet have been discussed above in regard with claims 3 and 9. The modified system of Hiramatsu and Doucet discloses the claimed invention except for each transmitter/receiver includes a plurality of telescopes, each telescope arranged to focus an optical signal having one of the predetermined wavelengths. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure each transmitter/receiver to include a plurality of telescopes, each telescope arranged to focus an optical signal having one of the predetermined wavelengths, since it has been held that mere

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duplication of the essential working parts of a device involves only routine skill in the art.

St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

Regarding claim 7, Hiramatsu differs from the claimed invention in that Hiramatsu does not specifically disclose that each of the transmitter/receivers includes a telescope, the telescope having filters and splitters to enable the telescope to focus optical signals having any of the predetermined wavelengths. However, it is well known in that art to use a telescope having filter and splitter that focuses optical signal. For example, Doucet discloses a wireless optical transmitter/receiver system that using telescope that focuses optical signal (fig. 20, optical antenna 3210). Doucet further discloses the telescope having filters (fig. 21, beam separator 3740) and splitters (fig. 21, beam splitter 3730). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a wireless optical transmitter/receiver system that using telescope that is able to focus optical signals having any of the predetermined wavelengths, as it is taught by Doucet, in the system of Hiramatsu to replace the optical cable link in order to save the costs for laying optical cables.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakamura (U.S. Patent US 6,754,451 B1) discloses an optical transmission/reception system.

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Dishman et al. (U.S. Patent US 6,259,544 B1) disclose a system of communicating in free space using an optical communication system.

Ariyavisitakul et al. (U.S. Patent US 5,936,754) disclose a transmission system for backhauling CDMA signals from remote antennas to the centralized base station of a wireless communication system includes optical transmitter and receivers.

Rutledge (U.S. Patent US 5,844,705) discloses wireless communication systems using free-space optical links.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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qzw

11/1/2006



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